

A Sturdy Stove for the Kitchenette That Is Equal to Any Task

With an Oven, a Broiler and Two Surface Plates, What Would Mere Legs Add to This Stove?

By Anne Lewis Pierce
THIS is a sturdy, hard-working, plain little black stove. It puts on no frills as to appearance in the way of enamel and nickel trimmings, but is not a compromise; it will do a stove's work, although it sits on a table instead of standing on its own legs, and takes up a bench space only 36 by 16 inches, the oven

being 22 inches high with the stove top 6 1/2 inches high, and covering 20 of the total 36 inches of length.

Perfect control is obtained, as the two burners (8 and 5 inches, respectively) and the oven and broiler, each has its three-ply switch for low, medium or high heat. The center opening shown in the photograph is a convenient plug to which per-

colator, electric iron or toaster can be attached.

Scope of Operations

This is a device standing halfway between the lamp socket devices and a large electric range. It must be specially wired and installed as a part of the heating system, as each of the two oven elements and the small right hand plate require the entire wattage of a lamp socket outlet, and the large left-hand surface element alone takes double that on high (i. e., 1,140 watts), a total of over 3,000 watts when all parts are on high heat, and the stove is wired to operate all parts at once.

With this amount of heat, perfect control, a broiler and an oven, and only 90 pounds of weight, with table or shelf installation, it is seen that this is an ideal small family stove for limited kitchen space.

While the insulation of the oven is not, of course, with this sort of construction, as effective as in a regular stove (only about half that of one large range examined), it is possible to roast satisfactorily on medium heat, after the desired oven temperature had been obtained by the high, but low heat will not keep up a baking temperature.

Such points are absolutely essential to the economic operation of electric cookers of any sort. Using the retained heat, cooking with the heat off, or on low or medium, as much as possible, cuts the bill for electricity notably.

Construction Details

The stove is made of blue polished sheet steel fastened with light angle

iron strips, giving a light and strong construction. The hot plates are made of coiled heating wire set in grooves in a baked white clay material, much like porcelain. Underneath is a steel plate, separated 0.5 inch by washers, to which the terminal posts of the unit are fastened.

The oven is all metal with a lining of special alloy to prevent rusting, which is made in one piece to insure that it is as nearly airtight as possible; the door has a truncated pyramid form to fit closely into the mouth of the oven, and has a rotating pressure clamp to close it tightly. The sides, top and bottom are insulated with two inches of rock wool.

Both of the oven heating elements are of the radiating type also. The leads come in through the rear walls in porcelain bushings, which give good insulation and will stand the high temperatures obtained. There is a heat distributor, to be used in baking and roasting, to spread the heat to the sides of the oven; a broiler and a baking rack are furnished and may be set at any one of four heights on ridges spaced 2 1/4 inches apart.

Oven Temperatures

The two radiant elements (each with 625 watts) make the oven heat up quite quickly, a hot oven of 500 degrees being obtained in fourteen minutes, quicker time than in some large ranges. When the two switches were turned to medium the temperature continued to rise, and 580 degrees was reached (theoretically 650 could be obtained under these conditions). At this point the

top element was turned to low, and the temperature dropped slowly, becoming constant at 542 degrees. With only the bottom element on at medium a final temperature of 340 degrees was obtained (a medium oven), suitable for finishing cakes, breads and meats after the first higher temperatures have been used. At this point the switch was turned to low and only 235 degrees was maintained, which is too low for a cooking temperature.

The indicator, while not reliable for a close guide as to temperatures (it takes it about ten minutes to catch up with a constant temperature, once attained), is a help in showing what the temperature tendencies of the oven are. An oven thermometer used in connection with the indicator would soon show you just how to use it to the best advantage, and the following table shows the true temperatures, indicator readings and times observed in the Institute laboratory:

Readings on Door Indicator and Oven Thermometer, Both Units On at High

Oven temp. Min.	Temperature deg. F.	Indicator Reading Rising Constant	Cost Cents
0	68	0.0	0.00
2	125	0.0	1.0
4	180	0.0	2.6
6	245	1.7	4.4
8	320	2.7	6.3
10	384	3.8	7.7
12	440	5.0	8.7
14	490	6.2	9.8
16 1/2	562	8.2	10.3
20	620	10.0	10.7

Tests on Surface Units

Tests made on the open surface elements showed that a quart of water in a covered aluminum pan,

on the large plate element, boiled in 14 minutes starting cold, and a second test made on the hot element took only 9 minutes. The pan was not quite so large as the element, which means always that some heat is wasted and so a slightly increased efficiency might be obtained. The time on the latter test was cut from 9 to 7.5 minutes by using a pan exactly the right size.

This is an important point for the housekeeper to remember when using open elements for electrical cooking. Other experiments with a gallon of water showed an efficiency of 55 per cent (32 minutes boiling time) when starting with the cold unit and 77 per cent when a second gallon was boiled (in 27 minutes), the increase being due to the heat stored in the plates and top.

Summing Up

These are the points that the housekeeper needs to experiment on with her electric stove. Both costs and cooking results depend on the correct handling of this "high bred" stove. The three heats are put there because they are needed.

One should use them, as to expense of operation, observe that the 8-inch plate costs 11.4 cents an hour on high, the small plate 6.4 and the two oven burners 6.3 cents each.

But on medium these costs are almost cut in half, and at low they are about one-third. The stove stores heat, and it is of course stupid to cook up to the last minute on increasing heat and leave the stored

An Electrical Stove Weighing But Ninety Pounds and Asking Only for Table Space

heat to go off into the air after the food is removed.

Such cleanliness, convenience and compactness as this real stove for kitchenette space offers is worth a little money to maintain and a little trouble in getting acquainted, and it will cost you both, but it has full value to give in return. The

wiring permits all four burners and the extra attachment to be going at once, so you are fully equipped, not compromising, when you install this type of table range.

The Rubenber Kitchenette Range, Model D-90.
Made by the Rubenber Electric Company, Marion, Ind.

A Domesticated Set of Special Knives

IF you ever see a woman paring potatoes with a long case-knife, both handle and blade being too long and fitting neither the hand nor the job, edge dull and end blunt and incapable of going after the "eyes" or defects? We have, and the twelve-year-old boy of the family probably had a knife in his pocket that was a wonder and included a young kit of tools as well as two sharp blades!

As we have said before, "Tools for women!" Here are ten pieces, knives and forks and spatulas, each one fitted, like tools in a chest, to perform some special piece of work especially well. They are made of high-grade, polished tool steel, set in tough, ebonyized wooden handles. The blade extends down into the handle from 1 1/4 to 1 3/4 inches, and is held by a counter-sunk, round-headed brad, driven into the handle from the side and through a hole in the steel. This insures permanent tightness, and hot water is not to be feared.

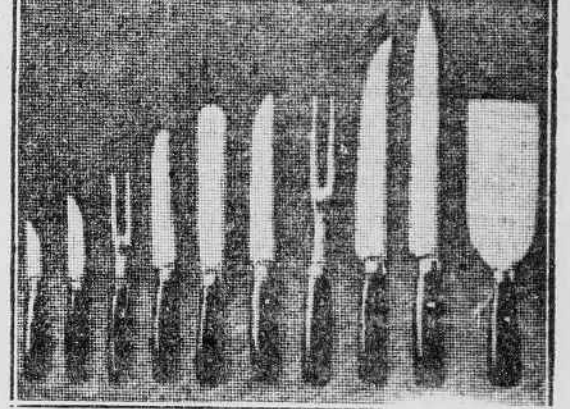
Beginning with the smallest in this family of ten we find on the left the small paring knife, with a two-inch blade and a 3 1/2-inch handle which is double-tapered, well balanced and fits the hand. The blade is curved on the back, and has also a slight forward curve of the point. A perfect little knife this for all peeling and paring operations. The next in size is the same shape, but has a three-inch blade and is slightly more flexible, to fit it for cutting and slicing large vegetables, as well as paring.

The two forks are each two-pronged, very stiff and with sharp, strong points, which will spear a hot potato or a biscuit without damaging its appearance. The smaller one is eight inches long, equally divided between handle and steel, while the larger one, suitable for handling and cutting meats, is of the same construction but ten inches long, with a handle 4 1/2 inches.

Of the two spatulas one is standard, with a six-inch blade and a 3 1/2-inch handle. The blade is one inch wide and so flexible that with the handle vertical one inch of the spatula may be laid flat on the table. The metal within 1 1/4 inches of the handle is heavier so as to make it stiff and durable at that point.

The larger spatula is 2 1/2 inches wide and six inches long, making it useful as a pancake, egg, fish or

ANY self-respecting worker desires and needs good tools that speed and good results may follow her efforts. The more housekeeping and food preparation gain in dignity the more obvious it becomes that the kitchen should be well equipped.



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NOTE that the oven, the broiler and the large and small surface elements each has its own three-heat switch, easy to turn, so that there is no excuse for wasting electricity after you are well acquainted with the stove's habits. In the center is a convenient opening where a percolator or iron or toaster can be plugged in.

Cooking Experiments to Show Cost and Control

WITH a view to choosing foods that were rather difficult to cook, pork chops and roast pork, baked potatoes and apples, and parsnips boiled and sautéed, were all prepared satisfactorily. Some of the details may be of interest to those beginning to cook with electricity, for there is much to learn about it in order to get the best results at the least cost.

It took 20 minutes to boil 1.5 quarts of water for the parsnips (pan here slightly small for element) and 10 minutes more a high heat after they were put into the water; the heat was then turned to low for 20 minutes and cooking continued with heat off entirely for the last five minutes. In sautéing these an iron spider was preheated five minutes on full heat, and the switch turned to medium for about six minutes for each panful. Total cost for heat, 9 cents.

In broiling the pork chops (cooked more thoroughly than would be necessary for lamb or steak), both oven

units were put on for 26 minutes, when the indicator in the front door read "9" (markings 1 to 12 for general guidance). At the end of that time the temperature was about 600 degrees F., more than is needed owing to the "lag" on the part of the oven indicator. This scale reading runs behind the real oven temperatures, about two or three divisions.

Reading 8 when it should read 10 at 560 degrees and only "catching up" after the temperature has been steady for about ten minutes. The housekeeper will be misled just as we were into heating her oven too hot unless she allows for the lagging indicator. A reading of about 6, attainable in fourteen minutes, would have been sufficient, giving around 500 degrees to the oven. Then, however, the lower element was turned off and the upper broiler kept on at high for ten minutes, followed by ten minutes of low heat and ten minutes with the current off. This cost approximately 6 cents for electricity, but represents the thorough cooking needed for pork, and could easily have been reduced even for that by fifteen minutes, making the cost nearer 4 cents.

Quarted apples dipped in sugar and cinnamon were placed on the rack with the chops during the twenty minutes of cooking at low heat and no heat, and were very delicious, much better than when fried. The upper slide brought the meat rather too close to the element, the fat caught fire, but on the next ridge cooking went on well.

Toast was also very successfully made with five minutes' preheating of the oven with both units and six minutes with the top unit on high to do four slices of bread both sides. The top of the second slide from the broiler was used and the slices were shifted to insure even browning.

A roast of pork (2.5 pounds) and baked potatoes were prepared together. Again both units were put

on for twenty minutes (fifteen minutes would have been sufficient, giving 500 degrees), for eight minutes after putting in the meat the heat was kept on at high. Then the top element was turned off and the bottom one turned to low for fifteen minutes. This proved to be a mistake—higher heat was needed, as the indicator went down to 5 (being numbered 1 to 12). It was turned to high again for five minutes and then to medium for forty minutes. The total time was nearly 1.5 hours and the cost about 9 cents at the 10-cent rate.

Potatoes were cooked at the same time, being done in about one hour. They were soft and the skins were dry and crisp. In the light of experience it is seen that the oven insulation will not permit of cooking at low heat, and the whole operation would have been better and the time shortened had the oven heat been turned to medium for the greater part of the time and finished on low.

The larger spatula is 2 1/2 inches wide and six inches long, making it useful as a pancake, egg, fish or

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An Introduction: Mr. and Mrs. New Reader, Shake Hands With The Institute Staff

DO YOU know what the Tribune Institute Seal means?

And how the appliances discussed on this page are tested before we certify them to you. All new and interesting apparatus for the kitchen, from the smallest to the

greatest, are gathered into the testing laboratory and studied.

The domestic scientist (Miss Edna I. Sparkman, Columbia University) puts them through their paces and the results are recorded. The stove must cook and the cleaners clean, and the electric washing machines actually wash—and just how well they do it and how convenient they are to handle, and what it costs in power or heat, are all recorded.

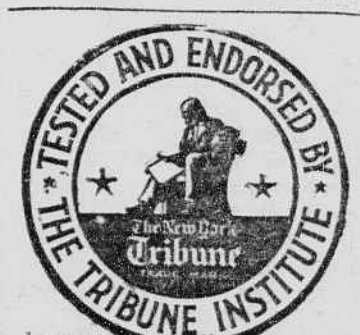
The two engineers (Mr. Richard McKay and Mr. Ralph K. Potter, also of Columbia University) make a detailed study of the construction, design and cost of operation of the appliances. Standardized tests are made as far as possible, and the machines are compared with others of the same sort, as to probable dura-

bility, actual efficiency and economy of operation.

Then the machines are rated and the reports and certificates issued to the manufacturer, with our criticisms and suggestions, if any, and a frank discussion of the results is printed on this page for your information.

Foods are treated in the same way, Miss Florence Margaret Lee making the practical tests and an official chemist of repute the chemical analysis.

This service is your service—it costs the manufacturer nothing, even the appliance being returned to him when the work is completed, so we are under no obligations except to serve the Institute readers and to put facts back of The Tribune's policy of guaranteed advertising. For



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Heating Tests

In the actual tests made in the Institute the heater was connected with the water supply line having forty pounds pressure, discharging through the faucet into the kitchen sink. The inlet water temperature was 77 degrees F. The heater, as received from the manufacturer, is always supposed to deliver water at 60 degrees, but the adjustment screw on top of the gauge can be moved to the right or left to get cooler or hotter water.

In twenty-seven minutes the automatic temperature control operated and turned off the current, the gauge needle registering 34. Immediately six quarts of water were drawn (and averaged 155 degrees, with a minimum temperature of 195 and a maximum of 115 degrees F. On turning off 2.5 quarts more, even the was found to average 102 degrees, ranging from 115 to 80 degrees.

Costs and Efficiency

This heating element, calling for 1,000 watts, averaged 953 during test, and the thermal efficiency was 18 per cent, the water receiving 127 B. T. U. out of the 1463 supplied. Some unaccounted heat losses undoubtedly occur by radiation.

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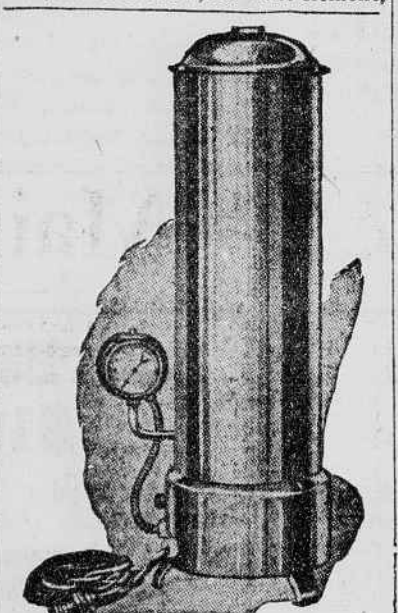
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such as is reported on here, an electrician will be needed to make the necessary connections, though the trouble will be very slight in most cases, as a ten-amperes fuse will suffice.

The water container, comprising the center of the heater, is made of galvanized, seamless steel tubing and the outside surface is covered with a baked, plastic insulation. The resistance wire heating element is wound clockwise around this insulation, and can neither corrode nor burn out. An outer layer of insulation completes the construction and prevents heat radiation.

The whole device is compact and slightly, and may be finished in white enamel or nickel, if preferred, for bathrooms and offices.

The 660-watt lamp socket device is built to give the same service in a slightly longer time. And there are also models to be attached to 30, 40 and 60 gallon tanks. These have not been individually tested, but operate on the same principle as the smaller models—of course, at greater expense.

Obviously, in kitchen and bath (especially in summer, when the heating plant is not in use), in hospitals, in doctors' and dentists' offices, in commercial offices, where the lavatories have no hot water, such an attachment is of the greatest convenience.

The Sepco Automatic Electric Water Heater, Type S.
Made by the Steam Electric Products Company, Cleveland, Ohio.